



WESTERN GREEN ENERGY HUB

GREEN ENERGY FROM MIRNING TRADITIONAL LANDS

Case Study

September 2023

INTRODUCTION

The Commonwealth Government is leading a review of Australia's National Hydrogen Strategy to best position Australia "on a path to be a global hydrogen leader by 2030 on both an export basis and for the decarbonisation of Australian industries". The future legal and regulatory framework for green hydrogen production, use and export and the relevant industry and infrastructure support mechanisms put in place by both the Commonwealth and State Governments will be fundamental to the success of Australia's nascent hydrogen industry.

The Western Green Energy Hub (WGEH) project is mid-way through a process to establish commercial feasibility and pursue development of an ultra-scale green hydrogen and green fuels project on a 15,000 sq km site in the south-eastern corner of Western Australia (WA).

The developers intend that the WGEH project will be built in several consecutive phases and potentially operate for many decades. As such, development of the WGEH project will necessarily consider and influence local, regional, and national 'environments' – cultural, social, natural, regional, and economic. WGEH is working to maximise benefits for all stakeholders, with deep and wide consultation and participation envisaged throughout the project development process.

This case study highlights some of the unique characteristics and key enablers related to the early development phases of the project.

WESTERN GREEN ENERGY HUB

WGEH is a phased wind, solar and green hydrogen/ammonia development located on approximately 15,000 sq km of Mirning Traditional lands across the Dundas Shire and the City of Kalgoorlie-Boulder, with an eastern boundary at the WA - SA border.

At full scale, the WGEH project has the potential to generate more than 50 GW of hybrid wind and solar power, which would make it one of the biggest power projects in the world, with the potential to produce up to 3.5 Mtpa of zero-carbon green hydrogen for use in power generation and minerals processing, as well as production of hydrogen-derivative green fuels for long-range shipping fuel and heavy transport.

While it is envisaged that much of the product will be exported, WGEH will have the capability to supply both domestic and international customers, as well as a more immediate supply of low-cost power and water for local offtake.

The WGEH project shareholders comprise Intercontinental Energy (46%), CWP Global (44%) and the Mirning People (10%), with the latter holding exclusive Native Title rights across most of the proposed project area.



Under current plans, the project will consist of:

- Wind and solar power generation and dispersed electrolysis assets across the site area, together with appropriate electrical and hydrogen connection infrastructure.
- A large downstream and processing area where the green hydrogen produced will be converted into green fuels and subject to validation, used for value-added products.
- Supporting / service infrastructure, including a marine loading and offloading facility (MoF); desalination facilities; and workforce residential and commercial facilities.

It is anticipated that many of the inputs for required project infrastructure and assets will be manufactured at site, supported by use of existing trans-continental highway and rail, as well as a new MoF for raw material delivery and green fuels export.

The Mirning have a 10% equity stake in the WGEH project development company and are integral to the conduct of cultural heritage assessments and the negotiation of an Indigenous Land Use Agreement (ILUA) to underpin project activities.

Environmental assessments are underway, as are broad site wind and solar measurements.

A Concept Feasibility Study for the project was recently completed with a view to establishing the broad parameters for the project's future specifications and associated land use.

Most recently, WGEH and Korea Electric Power Corporation (KEPCO) signed an Memorandum of Understanding on 11 July 2023, establishing the basis for negotiation of a Joint Development Agreement to produce green hydrogen and derivatives at the WGEH site. The press release announcing signature is available at: <https://wgeh.com.au/news/weghs-media-release>.

CORPORATE CHARTER

The WGEH Corporate Charter (Charter), developed and approved by the WGEH Pty Ltd Board and shareholders, formalises the fundamental purpose for which the business of WGEH exists:

“to create shared well-being on a healthy planet. The related project vision is “ultra-large-scale generation and global distribution of green energy from Mirning Traditional Lands, done in a manner that benefits everyone, everywhere, now and forever”.

The Charter informs a decision-making and delivery framework. It takes into account the balance of social, environmental, and financial values; the need to maximise opportunities, while minimising risks and costs; and the need to ensure that any focus on short-term interests does not adversely impact long-term and legacy considerations.

The Charter also frames the relationships with employees and external stakeholders, each of which is fundamental to success. These principles are grounded in mutual recognition, mutual respect, mutual trust and mutual obligation.

As one key example of this, WGEH commits not to undertake any activities on Mirning Lands to which the Mirning do not agree to.

PARTNERS AND SHAREHOLDERS

The WGEH project shareholders consist of Intercontinental Energy (46%), CWP Global (44%) and the Mirning People (10%).

About InterContinental Energy

Using upstream wind and solar, InterContinental Energy (ICE) delivers green hydrogen at scale to accelerate the energy transition. ICE has been pioneering best-in-class green fuel hubs since 2014 with a portfolio of tier one

projects across Australia and the Middle East. With a highly experienced, multi-disciplinary and global team, ICE thinks big to turn innovation into action - guided by the ethos of “doing the right thing, the right way”.

ICE operates in three hubs across Singapore, Australia, and the Middle East. The company focuses on optimising outcomes for all stakeholders, including First Nations and other communities, as well as collaborating with project partners to deliver value to its strategic investors.

About CWP Global

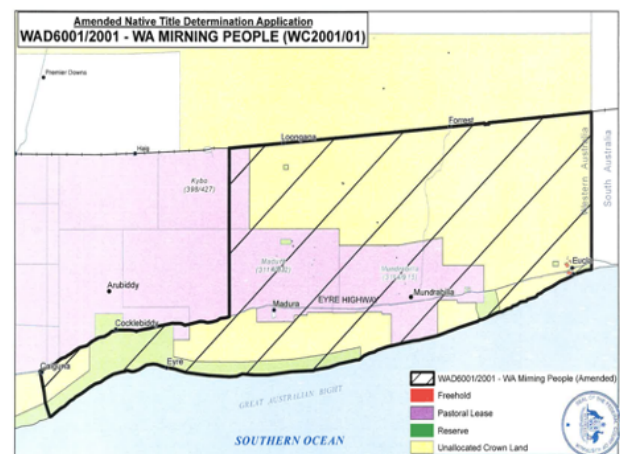
CWP Global is an integrated renewable energy developer, with expertise across the full project cycle, and with a track record of having delivered and operated the largest portfolios of utility-scale renewables in both South-Eastern Europe and Australia. Over the last five years, CWP Global has broadened its vision and project development activities to pursue origination of ultra-large-scale green hydrogen / Power to X (PtX) hubs in prime locations around the globe.

CWP Global is currently leading or involved in the development of eight large-scale green hydrogen hubs across three continents: Africa, Australia and South America. CWP recently announced a strategic investment by Copenhagen Infrastructure Partners in a portfolio of projects within its green hydrogen business.

About the Mirning People

In 2017, the Federal Court of Australia handed down a determination of exclusive possession native title to the WA Mirning People. This title covers an area of approximately 2.2 million hectares in south-eastern WA.

The land is managed by the Mirning Traditional Lands Aboriginal Corporation RNTBC (MTLAC). Mirning Green Energy Limited is a commercial entity of MTLAC, and holds a 10% carried interest in WGEH, as well as a permanent seat on the Board.



WALKING WITH THE MIRNING PEOPLE

WGEH continues to enjoy a unique and fruitful relationship with the Mirning People, who are the Traditional Owners and custodians of the land on which the project is situated. The Mirning's deep spiritual connection to their land and respect for indigenous culture is intrinsic to the development of the WGEH project, with Mirning bringing their unique knowledge and cultural heritage to WGEH business activities.

Under the WGEH shareholders' agreement, the Mirning have a permanent seat on the WGEH Pty Ltd Board and enjoy a significant minority shareholding (with free carry) of 10% in the period through to Final Investment Decision (FID). After the passage of 50 years from FID, the Mirning can pursue majority ownership of the project.

This partnership arrangement described above precedes, and is standalone from, the negotiation of the necessary ILUA arrangements between the Mirning and WGEH. In this way, the partnership reflects the minimum set of benefits that must accrue.

Mirning knowledge-holders are integrated into all on-country assessments for the project, including cultural heritage, environmental and the positioning of wind and solar assets. One critical requirement is the identification, perseverance, and management of Cultural Heritage sites.

Mirning and Spinifex knowledge holders have shared with WGEH the significant Cultural Heritage values of the Tjukurpa (song lines), as well as identified localised Cultural Heritage sites. An exclusion zone 15km north of the escarpment line has also been requested, and agreed to by WGEH, and has guided the planning and layout of infrastructure.

Culturally, appropriate project communications and deep consultation are key to both mutual understanding and consent.

As early-stage project planning progresses, WGEH is exploring opportunities for First Nations-related initiatives, for example: the return of Mirning families to country; intergenerational opportunities for skills, training, and jobs; and ranger programs.

GREENFIELD REGIONAL DEVELOPMENT

While other large-scale renewable and green energy projects are proposed in regions that have historical development and industrial activities, WGEH is in an area that has thus far been relatively undeveloped.

The project's location was identified primarily by reference to the impressive renewable energy resources of the area, including the benefits of the diurnal solar and wind patterns in that part of coastal Australia.

The South-Eastern Goldfields region of WA is relatively unencumbered, offering the potential to pursue project plans and layouts most suited to the development of an ultra-scale green hydrogen hub with various PtX opportunities. This enables the project focus on multiple, "stackable" economic benefits, including new and repurposed infrastructure, new green jobs and industries, cheap green processing of raw materials/minerals and new, value-add exports.

New supply chains and supporting infrastructure will be established to develop WGEH from project inception, precipitating the growth of the economic base of the region.

It is anticipated that many of the inputs for infrastructure and other project assets will be manufactured at site with materials delivered to site via sea, road, and rail. This may include plate steel for the construction of wind turbine towers, as well as the manufacture of blades.

Electricity

WGEH will be built in phases, each based around several concentrated renewable energy generation nodes, and each potentially capable of generating around 2GW of hybrid wind and solar power.

At full scale, WGEH will potentially produce a total of more than 50 GW of renewable energy. According to early planning, there is likely to be available power capacity for use both within and external to the project hub, offering a potential catalyst for new business, industry, and regional development.

Potential availability of power for external use, together with the central Australian location of WGEH, creates an opportunity to consider investment in transmission infrastructure to enhance stability across the South-West Interconnected System (SWIS) in the west and the National Electricity Market (NEM) in the east

Water

WGEH proposes to develop an 80 GL desalination plant, which would draw water from the Southern Ocean for ultimate use in electrolyzers to produce green hydrogen

A 20GL expansion to the plant would be readily achievable, with the extra capacity offering a potential stimulus to new opportunities locally and throughout the region. For example, water could be made available for the local pastoral industry, as well as for new ventures in horticulture and aquaculture, as well as other industries reliant on water.

A potential link to the existing integrated Goldfields supply system, which is presently operating with constrained supply, is also a possibility for future consideration.

Township

WGEH is in principle committed to considering alternatives to traditional fly-in, fly-out (FIFO) arrangements for the construction and operation of the project. This includes the potential development of township / village options within the project site to support dedicated local jobs and promote broader regional development.

Currently, the nearest settlement to planned key infrastructure within the project site is Eucla, with a population of approximately 50.

Village/town options in both the eastern and western regions are under consideration in the early planning phase of project development.

Strategic Location

WGEH is strategically located on the central south coast of the Australian mainland. Development of the WGEH project may open opportunities to enhance monitoring for maritime security and safety, availability of medical services and emergency treatment response, and as a through point for integration of transport and other key infrastructure.

It is notable that there is no safe haven presently available between Esperance and Port Lincoln.

COLLABORATING FOR VALUE

WGEH recognises that projects of this proposed scale and complexity require on-going collaboration with a range of partners and key stakeholders, from the private sector, government and the broader regional community.

JTSI Study

WGEH and the WA Department of Jobs, Tourism, Science and Innovation (JTSI) are engaged in a study to help define the areas where effective collaboration between the project and the WA Government could deliver mutually beneficial outcomes as between the State and other industry and community stakeholders. This includes:

- The potential for marine, accommodation, power, rail, road and other project infrastructure to deliver benefits for other projects and the State.
- The potential for upstream manufacturing and heavy engineering requirements to create new and sustainable commercial activity and economic / industrial sectors within the WA economy.

- The potential for the green hydrogen and other green fuels that will be produced by the project, together with abundant cheap power and water, to create downstream opportunities to produce green chemicals and related products.
- The cross-sectoral development opportunities for local and WA economic growth, particularly in sectors such as agriculture and food, where the availability of large amounts of zero-emissions, low-cost power and water may offer a distinct comparative advantage.
- The likely requirement for the township of Eucla to develop into a major regional centre, both in support of the project development phase and in the pursuit of both upstream and downstream economic opportunities.

Bioregional planning and assessment

During the development phase prior to construction, WGEH will consider the inter-related environmental impact of past, present, and future activities. These considerations are required under both State and Commonwealth legislation.

WGEH continues an engagement in a wide range of environmental studies, including vegetation, fauna habitats, karst features and the potential for significant flora and fauna species to occur. These studies extend to the marine environment, where oceanographic and biodiversity studies are also taking place.

WGEH and the WA Environment Protection Authority have embarked on early discussions regarding the various environmental assessment protocols that would apply to the broad regional scale of the project. WGEH is committed to ensure that robust environmental studies are undertaken in a manner that sets a benchmark for the development of ultra-large-scale green energy projects in WA and nationally.

It is acknowledged that the project area is presently under-represented in the State's environmental database, and the WGEH project development process will add new scientific, landscape and environmental information for broader use.

It is also recognised that reforms to Federal environmental legislation may seek to develop a more comprehensive process of strategic environmental assessment, so that climate adaptation and regional recovery plans are considered alongside a broad range of activities across different bioregions, including the development of ultra-large-scale green energy projects.

Further partnering

WGEH continues to pursue discussions and opportunities with a wide range of potential partners, collaborators, and investors, including in the areas of infrastructure build, technology and other supply chains, as well as potential offtakers. This effort is a critical pillar for the project development process given the immense project scale, the phased development timelines and the anticipated capital expenditure and costs.

By way of example, WGEH recently signed a MOU with KEPCO, Korea's largest energy utility, with a view to negotiating a Joint Development Agreement to underpin participation in the WGEH project. In the first instance, the MOU provides a platform for further, and more detailed collaboration between WGEH and KEPCO as potential future joint project developers.

This development highlights that WGEH is a significant ultra-scale green hydrogen project at both the national and international levels, with invested shareholders and an outlook to secure further project partners and offtake opportunities.

INTERNATIONAL MARKETS AND EXPORT OPPORTUNITIES

The existing National Hydrogen Strategy (NHS, 2019) seeks to position Australia as a major player in the emerging global green hydrogen industry by 2030 and beyond. Studies by the International Energy Agency (IEA), the World Energy Council and others have shown that Australia has the potential to be one of the world's biggest producers of green hydrogen and derivatives, and at a globally competitive cost and deliverable price range, particularly through the development of large-scale hydrogen hubs.

WGEH is well suited to play a significant role in delivering on the National Strategy's vision to pursue a "clean, innovative, safe and competitive hydrogen industry that benefits all Australians, and is a major global player by 2030". The project's massive scale, enviable renewable-energy resource, location, regional development opportunity and First Nations participation make it an exemplar of the myriad opportunities that can potentially flow to Australia from a concerted push into this new industry.

This includes the potential supply of green hydrogen, green fuels and other value-add derivatives to satisfy increasingly clear demand signals from key trading partners, particularly in East Asia and Europe.

In Asia, recent policy announcements in the form of Japan's New Hydrogen Strategy (2023) and Korea's "3UP" H2

Growth Strategy (2022), as well as demonstrated interest from their energy and industrial conglomerates, utilities and potential investors, suggests a ripening of hydrogen energy demand in key East Asian economies. In turn, there is real potential for collaboration, offtake and foreign direct investment to accelerate the emergence of hydrogen industry in Australia.

This is demonstrated by the recent signing of an MOU between WGEH and KEPCO, and an expectation that international offtaker and investor interest will grow as the WGEH project continues to take shape.

WGEH looks forward to deepening its cooperation with East Asian and other partners globally.

IN SUMMARY

WGEH will continue to work closely with the WA and Federal Governments on opportunities that promote and accelerate the development of the WGEH project in line with domestic industry, trade and investment policy priorities to deliver maximum benefit and leadership status for Australia.



WESTERN GREEN ENERGY HUB